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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,472	02/02/2001	Masaaki Hiroki	SEL 238	7144

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EXAMINER	
LIN, JAMES	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/776,472	HIROKI ET AL.	
	Examiner	Art Unit	
	Jimmy Lin	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6,7,19,26,31,48-51 and 53-77* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6,7,19,26,31,48-51 and 53-77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/8/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/10/06 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 53-61, 63, and 71-77 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support for discharging a light-emitting material (other than organic light-emitting material) through a contact element. There is no evidence that the Applicant had possession and had presented written disclosure fairly indicating that the Applicant intended to claim discharging the genus of all possible light-emitting materials through a contact element.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 6-7, 19, 31, 48, 50-51, 53-55, 57-58, 60-67, 69-74, and 76-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (WO98/24271, references made are to the English equivalent, US Patent Application 2002/0041926) in view of Iguchi (WO98/27579, references made are to the English equivalent US Patent Application 2002/0009536.) and Kasubuchi et al. (U.S. Patent 3,878,517).

Claims 6,53: Miyashita teaches filling an ink-jet nozzle with ink (an application liquid) for forming an electroluminescent (EL) layer and applying it to a pixel column (Abstract; Fig. 1).

Miyashita does not explicitly teach discharging the application liquid while the nozzle and pixel column are connected through the application liquid nor traversing by scanning along a direction parallel to a pixel column. The differently colored pixels of Miyashita appear to be small rectangles rather than elongated stripes (Fig. 8). However, Iguchi teaches that the differently colored areas of plasma displays (a particular type of electroluminescent displays), may be elongated stripes, which are printed by traversing a nozzle along the direction parallel to the partition walls ([0206]-[0207]), which are between, and therefore parallel to the underlying electrodes (Fig. 1; [0293]).

In addition, Miyashita teaches that the deposited material in the pixel column may be connected to the nozzle via the liquid stream (Fig. 1). Kasubuchi teaches that ink-jet printing using ultrasonic oscillations may be used to provide ink intermittently or to provide a continuously-discharged stream of droplets (col. 7, lines 6-24). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to have used different colored pixels of elongated stripe shapes because Miyashita teaches that such is an operative embodiment of differently colored pixels for electroluminescent displays and to have deposited such stripes by a continuous stream because Miyashita teaches that a continuous stream connecting the nozzle and the pixel column may be used to deposit such stripes and because Kasubuchi teaches that ultrasonically-operated ink-jet printers are capable of providing continuous streams.

Iguchi teaches that when depositing electroluminescent material between partition walls of EL displays (abstract), it is desirable to maintain a constant distance between the substrate and the nozzles, and that such distance may be maintained by a height sensor 40 in contact with the partitions ([0246]-[0249]). The height sensor is indirectly attached to the ejection head 20, which is in turn directly attached to the nozzle 44. The contact element is interpreted to be everything directly/indirectly attached to the nozzle. Thus, the contact element would be at least inclusive of the height sensor and the ejection head. The contact element (i.e., at least the ejection head) discharges the liquid and is connected with the pixel column through the liquid. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a contact element in contact with the partition walls in order to have maintained a constant distance between the nozzle and the substrate during the coating process.

Claims 64,71: Miyashita teaches that the EL device can have an active matrix, a plurality of pixel electrodes, and a plurality of thin film transistors ([0139]-[0142], Fig. 9).

Claim 7,54,65,72: Miyashita demonstrates that the orifice may have a smaller inside diameter than the rest of the nozzle (Fig. 11).

Claims 19,51,55,61,70,77: Miyashita teaches that the ink-jet printer prints between partition walls (banks) (105) covering at least an edge portion of pixel electrodes (101, 102, 103). (Fig. 1; [0043]-[0050]).

Claim 31,57,66,73: Iguchi teaches that the material is discharged with scanning the nozzle along a direction parallel to the partitions.

Claim 48,58,67,74: Kasubuchi teaches ultrasonically-operated ink-jet printers.

Claim 50,60,69,76: Miyashita teaches that the banks may comprise resin [0046].

Claim 62-63: Miyashita teaches that the EL device can have a passive matrix [0148].

7. Claims 26 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Iguchi '579 and Kasubuchi '517 as applied to claims 6, 53, 64, and 71 above, and further in view of Kurosawa et al. (U.S. Patent 6,057,647, hereafter '647).

Miyashita, Miyashita, and Kasubuchi are described above. Miyashita teaches that the EL elements may be deposited on top of thin film transistor (TFT) elements ([0015], [0134], [0138]) and teaches that the EL elements may be formed by forming pixel electrodes on a substrate and forming a bank overlapping the edges of the pixel electrodes on the pixel electrodes, as discussed above. Miyashita does not explicitly teach that a TFT is formed on a substrate, an insulating film is formed on the TFT, and the pixel electrodes (and then banks) are formed on the insulating film.

Kurosawa teaches a method of depositing EL elements onto TFTs, in which TFTs (2, 3) are formed on substrate (31) and then insulating layer (52) is formed on the TFTs, followed by the anode (161) (as the pixel electrodes of Miyashita) are anodes and partitions (63) (Fig. 14, col. 11, lines 1-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the configuration of Kurosawa as the particular configuration to integrate the EL elements of Miyashita with the TFTs of Miyashita with a reasonable expectation of success because Kurosawa teaches that that configuration is an operative method of using TFTs in conjunction with EL elements.

8. Claims 49, 59, 68, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Iguchi '579 and Kasubuchi '517 as applied to claims 6, 53, 64, and 71, and further in view of Horike (U.S. Patent 4,281,332, hereafter '332),

Miyashita, Miyashita, and Kasubuchi are described above, but do not explicitly teach that the ink is heated during discharge. However, the examiner takes Official Notice that it is very well known in the art of ink-jet printing to control the viscosity of the ink by heating it. See, e.g., Horike, which teaches that a heater may be provided to control the viscosity of the ink (col. 11, lines 5-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have heated the ink during ink jet printing in order to have controlled the viscosity. Miyashita does not explicitly teach that the ink-jet nozzle works using ultrasonic oscillation, but instead teaches the use of a vibration pulse pressure dispenser (See [0083]-

[0087]). Horike teaches a particular pulse pressure dispenser (col. 1, lines 6-11), which uses ultrasonic vibrations (i.e., oscillations) in order to provide pressure pulses (col. 3, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the ultrasonic vibrator of Horike as the particular vibrator of Miyashita with a reasonable expectation of success because Horike demonstrates that ultrasonic vibrations are capable of providing the pressure pulses to operate ink-jet printing nozzles.

Response to Arguments

9. Applicant's arguments filed 7/10/2006 have been fully considered but they are not persuasive.

Claims 6-7, 19, 31, 48, and 50-52 as rejected over Miyashita '271, Iguchi '579, and Kasubuchi '517:

The Applicant argues that the height sensor 40 is not in contact nor is it attached to the nozzle. The Applicant further argues that a particular connection is provided in Claim 6 between the nozzle and the contact element and that such a connection is not disclosed or suggested in Iguchi '579. However, the contact element can be interpreted to be everything directly/indirectly attached to the nozzle, which would be inclusive of at least the height sensor and the ejection head. Therefore, the contact element (i.e., at least the ejection head) discharges the liquid. In addition, the claims still do not require a particular connection between the contact element and the nozzle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JL
JL

KEITH HENDRICKS
PRIMARY EXAMINER